

WHAT IS CLAIMED IS:

1. A device for measuring breath alcohol, the device comprising:

a mouthpiece for picking up the exhaled respiratory gas volume flow of a person to be measured;

a flow diaphragm provided in said mouthpiece;

5 a pressure sensor connected via a first gas line to the mouthpiece upstream of the flow diaphragm;

a breath alcohol sensor;

an inlet channel connecting said breath alcohol sensor to said mouthpiece downstream of the flow diaphragm;

10 a sampling system for sampling the respiratory gas sample from the respiratory gas volume flow;

a second gas line connecting said breath alcohol sensor to said sampling system;

an evaluation and control unit receiving measured signals of said pressure sensor and of said breath alcohol sensor and actuating said sampling system, said sampling system feeding two
15 respiratory gas samples, in a time sequence, into said breath alcohol sensor, whereby a volume of a first respiratory gas sample is at most 40% of the volume of a second respiratory gas sample.

2. A device in accordance with claim 1, wherein said sampling system has two lifting magnets acting on a bellows such that a first lifting magnet has a stroke that is 30% to 40% of a stroke of said second lifting magnet.

3. A process for measuring breath alcohol comprising the steps of:

providing a mouthpiece having a flow diaphragm;

picking up an exhaled respiratory gas volume flow of a person to be measured;

connecting a pressure sensor via a first gas line to the mouthpiece upstream of the flow

5 diaphragm;

connecting a breath alcohol sensor, via an inlet channel, to the mouthpiece downstream of the flow diaphragm and, via a second gas line, to a sampling system for taking a respiratory gas sample from the respiratory gas volume flow;

10 receiving measured signals of the pressure sensor and the breath alcohol sensor at an evaluation and control unit;

using the evaluation and control unit to actuate the sampling system;

determining a discharged respiratory gas volume by the evaluation and control unit based on the pressure of the respiratory gas volume flow measured at the diaphragm and by time integration;

15 actuating the sampling system by the evaluation and control unit for a respiratory gas sampling in the breath alcohol sensor at two different time points after the beginning of the respiratory gas volume flow detected by means of the pressure sensor with the volume of the first respiratory gas sample at most 40% of the volume of the second respiratory gas sample and the second respiratory gas sample is taken only if a certain, predetermined respiratory gas volume is
20 reached within a certain, predetermined time.

4. A process in accordance with claim 3, wherein the second respiratory gas sample is taken if the overall exhaled respiratory gas volume is at least 1 L and if at least 4 seconds have passed since the beginning of the detection of the respiratory gas volume flow exhaled by a person.

5. A device for measuring breath alcohol, the device comprising:

a mouthpiece defining a flow passage for receiving the exhaled respiratory gas volume flow of a person to be measured, the flow passage having a flow restriction providing a pressure drop in the flow passage;

5 a pressure sensor connected to the mouthpiece upstream of said flow restriction;

a breath alcohol sensor;

a channel connected to said mouthpiece downstream of said flow restriction;

sampling means for providing respiratory gas samples of the respiratory gas volume flow from said channel to said breath alcohol sensor in a time sequence with a sample volume of a first
10 respiratory gas sample being at most 40% of a volume of a second respiratory gas sample;

an evaluation and control unit receiving measured signals of said pressure sensor and actuating said sampling system.

6. A device in accordance with claim 1, wherein said sampling means comprises two magnets acting on a displacement member with a first magnet providing a displacement member stroke that is 30% to 40% of a displacement member stroke produced by said second magnet.